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# FOREST SERVICE

## MONTHLY REPORT OF THE OFFICES OF FOREST EXPERIMENT STATIONS AND DENDROLOGY

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MONTHLY REPORT OF THE OFFICES OF
FOREST EXPERIMENT STATIONS AND DENDROLOGY

August, 1925

FOREWORD

(Continued from the July issue. To be concluded in the September issue.)

The Preparation of a Program of Work

In general, such a program as is here being considered should be based on a careful survey of (a) the probable development of agriculture in the State during the period to be covered by the program, and the problems which are likely to arise because of this development; (b) the proper place of the experiment station among the various State agencies for the promotion of the interests of agriculture; and (c) the relation of the activities of the individual station to those in adjoining States which serve the same general agricultural region and have, therefore, similar problems as possible factors in their programs of work.

It is, of course, impossible for any single individual or group of scientists to accurately foresee all the changing conditions which may affect the agriculture of their State or region during the future period to be covered by their program. But every experiment station staff has a group of men who have occupied positions of responsibility and leadership in the State's agriculture for many years and who, by training and experience, are at least as fully qualified to predict future developments as are any other similar group within the State. The combined wisdom and judgment of these men ought to be brought to bear upon the problem of the future development of the station's program. The results of a careful survey and thoughtful planning for the future by such a group ought certainly to provide a better basis for development of station policies than do personal preferences of individual workers or impulsive undertakings resulting from emergency demands.

The program ought to be based also upon a careful understanding of the relation of the research agency to the agencies for teaching and extension work in agriculture and the regulatory functions of the State government. Generally speaking, the members of the staff who, through years of service, have seen these several other agencies grow up, oftentimes as the result of the activities of these same men in their station work under more primitive conditions of agricultural organization, are in a very favorable position to formulate a program for station work which will adequately provide the necessary research foundation for these other activities.

The first step in the preparation of such a program is, of course, a survey of the present activities of the station and of its adequacy to meet present needs, to be followed later by a similar general survey of the probable future needs of the State and region for agricultural research. If the station work is on the formulated project basis, a simple assembling of the projects of the several departments into a collected statement should serve fairly well as a survey of present activities and as a basis for the discovery of omissions of important present needs. Future needs may be as a basis for periodic reviews of progress. Some individuals may make brilliant contributions to knowledge while using slovenly mechanical equipment, erratic mental processes, and sporadic bursts of imagination and effort; but the great majority of workers will succeed best through steady, orderly and continuous effort and progress along a well-considered pathway toward a definite goal.

(b) To the administrative officers an organized plan or program of work has many advantages. In the first place, it serves as the best possible basis for a convincing appeal for moral and financial support for the station. An organized program permits the station director to sound out his constituency on the question of their approval of his plans and to appeal for support on the basis of this approval when it is secured. Or, it provides a basis for amendment or alteration, if necessary, of the station's plans until they can and do enlist this approval and support. It is, undoubtedly, the duty of the director to be the leader in the preparation of plans for the development of agricultural research, but it is also his duty, as a public servant, to be sure that these plans shall fit the case and find response in the station's constituency. This duty exists quite apart from the matter of the expediency of having public support back of request for appropriations by the legislature.

In the second place, a formulated program serves as a very satisfactory basis for a survey of needed equipment and personnel at the station and for the annual budget making.

Third, a formal program offers a convenient measure of progress of station work from year to year or decade to decade; as well as a basis for judgment as to the adequacy of the station program to meet the needs of the agricultural situation within the State and region.

Further, a definitely-formulated and publicly-approved program of work will serve as the best possible basis for stability and continuity of work through the frequent changes of directors and of working staff, which seem to be the inevitable experience of the experiment stations. Far too few of the twenty or more present directors who have assumed their positions during the past two years have found in the records of their offices such a definite program of work as would make it possible to insure on their part an intelligent grasp of the present scope and policies of the station. Certainly the work of the station and the part which it is to play in the

development of the agricultural welfare of the State are far too important to be made subject to the personal opinions or wishes of each new director or employee, and a statement of some continuous policy and program for the station should be available as a basis for intelligent service in its behalf by the new men who come into the organization. This does not mean, of course, that the program shall ever be so inflexible as not to admit of improvement by amendment as new men and new ideas become available to the station; but it does mean that a well-worked-out program ought not to be interrupted or abandoned because of changes in personnel, or as a result of personal preferences of new men on the staff.

(c) To the general public. A definite program of work and of development serves as the only possible basis for an intelligent understanding by the general public of the place of the station in the State and national system of publicly-supported institutions. The importance of such an intelligent understanding, in these days of fluxof opinion with reference to the station may or may not be sought in the preliminary survey and formulation of such a program, but certainly it ought to be submitted to the test of their experience and intelligence before it is finally adopted. On the other hand, it is clearly the duty of the station director and his staff to assume definite leadership in planning for the future development of agricultural research in each State.

## FOREST EXPERIMENT STATIONS
### Washington

Shepard returned to Washington after having been out since the middle of May. During his absence he visited the Forest Products Laboratory and the Lake States and Northern Rocky Mountain Experiment Stations. He reports some very interesting experiences as a result of his travels, particularly in District 1, where he with other Research men participated in fire-fighting activities.

Bruce and Reineke returned to Washington from a trip to the northern experiment stations, where they looked into the progress of the various yield studies particularly in jack pine, western yellow pine, and Douglas fir. Bruce is taking extended leave from the Forest Service beginning September 1, and will not return until after the first of the year.

Munns spent the week of August 10 at the Appalachian Station taking up with Frothingham and Korstian the development of the Bent Creek branch station and the plans for Korstian's work at Yale.

A number of sections of the Administrative Guide have been completed. It had been originally hoped to provide the stations with this assistance to administration some time this fall, but it now appears that it will be impracticable to complete it before the first of December.

A change has been authorized by the Forester in the procedure for handling library accountability. Up to the present time all the library accounts were centralized in Washington. The National Forest libraries are now to be handled in the Districts the same as other property, which will relieve the pressure on Miss Stockbridge and give her more time for her other duties. The eastern experiment stations, the Laboratory, and District 7 will continue to be handled from Washington. The records for the western experiment stations will be handled in the respective Districts the same as for the National Forests.

Most of the time of the Section of Forest Measurements during the past month has been spent upon the southern pine growth study. A number of correlations have been made and some of the final curves have been drawn. It is hoped that within the next two months this study may be wiped off the Forest Measurements plan of work. Some time was put upon the western yellow pine volume table study, which is the next big undertaking in the section. How long it will take is impossible to estimate; a very large amount of the work has, however, already been done.

Assistance was also rendered by the section to the lumber price study now being tackled in earnest by Mr. Boyce in Forest Economics.

The Tabulating Section has been spending a very great amount of its time upon Accounts. The Forester has requested a compilation of activity costs for his annual report which will require some little time to compile. The section will probably be tied up on this work for most of September and part of October.

## LIBRARY

Last month the library loaned 708 books and periodicals, and 118 members of the Service and others consulted the library in person. The librarian indexed 197 books and articles for the card catalogue.

## DENDROLOGY

Federal Horticultural Board Activities.

Almeria Grape Question Reopened.—The finding of Mediterranean fruit-fly larvae in 1924 in Almeria grapes shipped to this country from Spain resulted in a complete embargo on that product. The infested grapes were rejected and further shipments denied entry.

The board also prevented Spanish shippers from selling several cargoes of Almeria grapes in Cuba by notifying the Cuban government that the grapes were infested by the fruit fly. As yet the Mediterranean fruit fly has not become established in Cuba, and on that account Cuban vegetables and fruits are freely shipped to this country. It became necessary, however, for the board to send an inspector to Cuba in order to convince Cuban officials that the grapes were really infested, their own inspectors claiming that they could not find the insect. It was evident to

the board that Cuban officials were secretly desirous of admitting these grapes, probably because of political sympathy. On the other hand, the board was insistent upon excluding them in order to insure Cuba's freedom from the pest and therefore a continuance of commercial intercourse.

While the question of further entrance of Almeria grapes to the United States was regarded by the board as definitely closed, the tropical fruit importers association, which is a wealthy and powerful organization, particularly in New York and Boston, has continued to attack the embargo and has also induced the Spanish government to try to break it down. The Spanish government's desire to have the embargo lifted has recently come to the Secretary of Agriculture through the State Department. This effort presents a particularly formidable aspect because it is put forward at a time when the commercial treaties between Spain and this country are about to be renewed. Representatives of the Spanish government have allowed it to be inferred indirectly that the denying Almeria grapes a market in this country may influence Spain's ratification of the commercial treaties.

The fact is that Spanish officials do not realize what a disaster would be caused to American horticulture should the Mediterranean fruit fly become established here. Failure to appreciate our great danger has been due to the influence of both grape growers in Spain and disloyal money interests in this country directly concerned in the sale of these grapes here.

Desirous of carefully reconsidering the whole question, the Secretary of Agriculture authorized the Chairman of the Board in August to go to Spain and to study the problem on the ground. This study proved even a wider infestation of Almeria grape vineyards than was shown in inspection of grapes shipped to this country. It also disclosed that the promises of growers there to eliminate figs and other fruits on which the fly subsists until the grapes can be attacked, were absolutely false, nothing of the kind having been done, nor was there any intention of doing it when the promises were made.

Fully confirmed in its position to maintain the embargo against Almeria grapes, the board has recommended to the Secretary of Agriculture that American fruit growing interests be not placed in jeopardy by modifying the quarantine. The Secretary has indicated that he is entirely in accord with the board's decision, and he will advise the State Department that he cannot lift the embargo.

It remains to be seen in the final settlement of the matter whether purely commercial interests will be brought forward in connection with Spanish-American treaties as compelling reasons for asking the Secretary of Agriculture to so modify the embargo as to admit Almeria grapes to this country.

Identification of Furniture Woods is the title of a recently prepared circular by Arthur Koehler. Altogether 37 species of native woods and 7 species of South American, African, Asiatic, and Philippine woods are described in nontechnical language and the distinguishing characteristics of cross-, tangential-, and radial-cuts of these woods are to be illustrated by reproductions of 30 of the finest photographs yet produced. The circular is divided into three parts: (1) a discussion of the physical qualities of furniture woods, methods of preparing and manufacturing the woods into furniture, including the use of solid and veneer material; (2) descriptions of wood used for furniture; (3) key for the identification of woods used for furniture. The manuscript of this circular was reviewed in order to insure uniform use of common and technical tree names, established by the Forest Service.

## EDITOR'S OFFICE

Professor Hart's "Essential of Prose Composition," a copy of which went to each Station last month, brings out many points which might well be developed with special reference to Research reports. One of these, although by no means the most important, covers a feature of many reports that has been the target of considerable editorial criticism and excision lately. Professor Hart calls it the "link paragraph," discussing it in Section 63 in general terms, and more particularly in Section 54. The same thing is more often called the "introductory," "transitional," or "summary" paragraph, depending upon its use.

Branch writers have been urged to use such paragraphs or sentences in their manuscripts, and then have had the manuscripts returned to them for revision with many of the carefully placed "links" shattered by the editorial pencil. They may not realize in all instances that the editor's objection was not to the paragraph as such, but to its failure to perform the function for which it was called into being.

Link paragraphs, like any others, must first justify their existence by their value and interest to the reader. They must be more than the conventional "bow and scrape" of a newly introduced topic; more than a mumbled "from that we turn to this" buffer between two adjacent topics.

An example may make the point clearer. Suppose an author to have written the following - and in original drafts of reports in the files I am sure a score could be found that would be its very echo:

> We have discussed air temperature in its relation to the forest types of this region, and we shall now consider other atmospheric conditions affecting the establishment and growth of the forest before taking up the subject of soil temperature, since the value of the latter is rather as a soil condition than as one of temperature.

Here is a very wooden link, indeed; hastily carved out, clumsy, dull, involved, clogging up the discourse rather than assisting it to march. I know this is so because I wrote the paragraph myself. It is a dismal parody of a very graceful paragraph that Bates gives us on page 52 of "Forest Types" (Bul. 1233). Yet it is no more dismal than many I have read in first-draft manuscripts, which seemed to have been written purely out of a sense of duty and without any real effort to think why such paragraphs are employed.

Bates' paragraph is a splendid example of just what such a paragraph can accomplish. In most instances it can and should address itself directly to the reader's thought and indicate plainly that the author is solicitous that the reader shall not become bored, be put off the track, or feel himself overlooked by the author.

Let us consider a simpler example, as follows:

> In addition to the forms of fire damage mentioned may be noted loss from insects and fungi, introduced or accelerated as a result of the action of fire.

In all probability the editor would cross out this paragraph as dead wood and proceed directly to business with "Secondary effects of fire are...." Yet the transition here would be deftly made with the help of an adequate link paragraph, and Show and Kotok in the "Role of Fire" page 18 have accomplished this with a four-line paragraph that is unobtrusive in itself, and still serves to keep the reader's gaze fixed on the page. On page 57 they might have written briefly: "Light burning has been tried also as a means of insect control." The short paragraph sentence in which they went beyond this point to hold the reader's attention is a more effective "link."

Another recent bulletin, Korstian and Baker's "Forest Planting" (1264), has on the contrary not a single link paragraph from cover to cover. The authors evidently did not feel this concession to the reader to be needful in treating so technical a subject with such a wealth of technical detail. Yet even in a treatise of this sort a certain obvious consideration for the reader is a welcome and graceful feature.

Curve Designations

What are we to do with the "number of trees per acre over age at stump curve," to avoid ambiguity and facilitate references perhaps to several such curves in one paragraph or frequently repeated references in articles on forest mensuration? The ideal way is probably to refer to the trees per acre / age at stump curve, but this at once brings up typist and typo-

graphical difficulties, and necessitates gaps in the printed page above and below the curve title.

After considerable discussion and consideration of the possibilities from the combined views of author, editor, and typographer, it appears that the best method in such instances is to write the curve title in italics with a long dash between the two variables. In manuscript, the italics will of course be indicated by underlining. Thus, the first sentence in the above paragraph should read: "What are we to do with the number of trees per acre - age at stump curve, to avoid..." This method, while not ideal, has the great advantages of being easy to indicate in manuscript, easy for the printer to follow, and easy for the reader to grasp. Suggestions and comment on this point will be welcomed, and will assist in determining whether this method may be adopted as standard.

## LAKE STATES FOREST EXPERIMENT STATION

During the month Kittredge completed the rough draft of his report on "Forest Planting in the Lake States" and Wackerman the final revision and checking of the jack pine volume tables.

The check of the volume table showed site quality as indicated by the height of the dominant trees to have no appreciable influence on the form of jack pine. To test the factors influencing the form of jack pine a multiple correlation equation was worked out, using about 300 trees which were cut on the yield plots and hence could be definitely assigned to site and region.

A card was punched for each tree, showing the region, site index, D.B.H., height, and form factor, and from this the following multiple correlation equations resulted:

When site index is included:

1. Form Factor = -.000672H-.0131 D.B.H. -.000798 Site index+.698 and the multiple correlation coefficient is .704.

When site index is not included:

2. Form Factor = -.00108H-.0123 D.B.H. +.666
and the multiple correlation coefficient is .698

In equation 1 it is evident that D.B.H. has by far the largest influence upon form factor and that height and site index are about equally important.

In equation 2, when site index is omitted, the correlation coefficient is not materially reduced. Site is evidently taken care of by its influence upon height.

Similar equations indicated that no greater accuracy could be obtained for the volume tables by making separate tables for each locality. The former tables for each region separately have accordingly been discarded and a new set prepared by the form factor method for the Lake States region as a whole.

The final draft of tables and text, which it is proposed to issue in the form of a handbook, has been prepared and will be soon available in manuscript form.

Two short field trips were made by Zon, one to Cloquet and the Minnesota National Forest in company with Dr. Schmitz, the new head of the Forest School of the University of Minnesota, Mr. Stace, editorial writer of the Grand Rapids Press, and Mr. Stedman, editorial writer of the St. Paul Pioneer Press. Ashe of the Washington office and Johnson of D-2 also accompanied them. Later in the month a special trip was made to Drummond, Wisconsin, at the request of the Rust-Owen Lumber Company, who are considering the advisability of changing their present methods of handling their timber, and desired advice in this connection.

The field party engaged on the Comparative Cost of Logging study, consisting of Brown, Koroleff, and Gevorkiantz, completed work with the Thunder Lake Lumber Company in Wisconsin and moved to Forest Lake in Upper Michigan, where a similar study will be made on the operation of the Cleveland Cliffs Iron Company. Here they were joined by two members of the Forest Products Laboratory, who will hereafter handle the mill end of the study.

On finishing his report on "Forest Planting in the Lake States" Kittredge left in company with Dr. Schmitz to spend a few days with the Cloquet Forest Experiment Station crew working under Probstfield on the aspen-birch study. From there, Kittredge goes to the Superior National Forest to work on this study in that region.

Progress has been made on the working plan for the study of swamp forests to be undertaken by the Station, and at the request of the county agent leader for Upper Michigan, a plan was outlined for a cooperative planting project on certain drained peat lands in that region.

During the month, 8 spot maps showing the location of fires in Minnesota during the past 10 years, by size, causes, and season of occurrence, were completed in rough and forwarded to Washington for final drafting.

During the month the Station was consulted by the State forest service in regard to a proposed investigation of the relation of weather conditions to fire hazard and in regard to a proposed economic survey which the State forest service is undertaking. Pinley of the State Forester's office also spent a day at the Station looking over the results of the analysis of Minnesota's forest fire statistics. The State forest service has shown an increasing interest in the fire studies and has agreed to cooperate in carrying them on to the extent of paying the salaries of two temporary men for a period of three months. It has been tentatively decided, also, to assign Pinley, for a month or 6 weeks, to a general field survey of the relation between weather conditions and fire hazard in cooperation with the Station.

Much to our disappointment the proposed cooperation of the Weather Bureau at Duluth in the matter of special fire weather forecasting was disapproved by the Washington office of the Weather Bureau on the grounds that funds for handling the work proposed were not available.

During the month the Station was visited by Mr. Stace of the Grand Rapids Press, Professor Bryant of Yale, Professor Ingvason of California, Professor Obolensky-Ossinsky of the Agricultural Academy of Moscow, and Bruce and Reinecke of the Washington office.

## CLOQUET FOREST EXPERIMENT STATION

There has been very little new work started during the past month. The work on the birch-aspen study has been continuing in the field and has been made to conform with the working plan for the Lake States project.

Considerable improvement work has been done around the Station and this, together with other outside matters, has taken up a great deal of time. An attempt was made to put a crew in the field to gather white spruce cones but it was found that the crop was so light that it would not pay to keep a crew on this work. It was therefore abandoned.

There have been quite a number of visitors during the past month: Zon and Dr. Schmitz; Mr. Stace of the Grand Rapids Press; Mr. Stedman of the Pioneer Press of St. Paul, and Johnson and Ashe of the Forest Service. Professor Bryant of Yale University was also a visitor at the Station.

The freshman class of the School of Forestry at Ames, who have been in summer camp at the Minnesota National Forest at Cass Lake spent a day going over the Station and going through the mills in town.

## NORTHERN ROCKY MOUNTAIN FOREST EXP. STATION

Fire fighting figured largely as an occupation of the experiment station staff during August. The fire situation in the District was worse in August than in July. Altogether the members of the experiment station put in 95 man-days fire fighting so far this season. This does not include the time Gisborne has spent making observations on going fires. The Rode fire on the Kaniksu Forest was the scene of action for Weidman, Kempff and Field Assistant Dieknann during August. This fire attained a size of 4,300 acres and a periphery of 18 miles. There were 7 fire camps of 50 men or more each in operation at one time. Weidman and Kempff were in charge of fire camps.

Gisborne spent five days on the Rode fire taking measurements of relative humidity, temperature, wind, and duff moisture, and making observations on the behavior of the fire. Temperature and relative humidity readings in particular were taken at 1/2 to 1-hour intervals from 5 a. m. to 6 p. m. every day for five days. Briefly, Gisborne was impressed chiefly by three points. One of these is that dead and rotten wood in the form of down branches and logs, as well as standing snags, are the most common and the most dangerous carriers of fire. On this forest fire, duff was a holder rather than a carrier of fire. The second point is that wind is very important. The different effects from winds of the smallest measurable velocity to four miles an hour were very pronounced, even with the fire burning downhill and into the wind. The third point deals with the effect of volume of fuel. In spot after spot at the different fronts of this and the Panhandle fire, Gisborne noted the difference in the behavior of the fires, as influenced by the volume of fuel that was burning. With temperature and relative humidity unchanged, he would find fire burning in duff, under mature forest, behaving rather quietly, while a little farther along the line it would be burning fiercely in debris and down logs.

The field crew on the yield and methods-of-cutting studies, comprising Haig, Marshall, and two field assistants, spent the month in and outside of the Clearwater Forest, fortunately uninterrupted by fires. Several private cuttings were studied and a number of temporary yield plots were taken in 55, 65, and 115-year-old stands.

Wahlenberg took annual leave during the first part of August and was engaged on seedbed records during the latter part of the month. A report on the results of seed tests in the greenhouse was prepared.

What was left of August after Kempff returned from fires was devoted by him to establishing two permanent sample plots in understocked 25-year-old stands, and in ctaching up on station maintenance work.

## PACIFIC NORTHWEST FOREST EXPERIMENT STATION

With the end of August the field work of the Douglas fir yield study rapidly approaches a close. During the month the two crews secured measurements of 171 temporary sample plots, comprising 112-1/8 acres in 22 different localities, and measured in addition to the plots 120 chains of empirical strip cruise. This makes a total of slightly over 1900 plots measured to date. It is expected that the field work of this project will be completed in September as we now feel that all conditions of soil and climate in the region have been or will be sampled.

Reineke of the Washington office spent about 10 days in the field with one of the yield study crews, and later spent three days in the office going over with us the plans for the computational part of the yield study. His knowledge of recent developments in the technique of these studies was of material assistance to our staff, and McArdle has revised the working plan for the yield study computations in order that advantage may be taken of these improved methods.

McArdle spent two days on the Douglas fir reproduction study, one day examining seedling survival plots and one day helping Isaac on the seed dissemination project.

Westveld spent the entire month in Central Oregon conducting single-handed yellow pine brush disposal studies on pumice soil, working partly on National Forest cutting and partly on private areas. Nine plots studied intensively covered extent of damage to reproduction by logging, distribution of brush with reference to its bearing on the relative fire hazard, area occupied by brush piles, extent of damage to reproduction by logging and by brush disposal, distribution of advance and subsequent reproduction in relation to cover and area, and vigor and height growth of advance reproduction under different conditions.

The study of the why and wherefore of Douglas fir reproduction after logging has been the principal work of Isaac and Kienholz. A part of the time they have worked together examining, by the temporary plot and transect methods, logged lands that have had known but various fire histories. Several private areas and one National Forest area were so examined. The results are puzzling and do not check well with accepted theory. Kienholz has also concluded examination and description of a considerable area of permanent belt transect in the Wind River Valley, mapping all vegetation.

About ten days of Isaac's time were spent finding a suitable location and working out the details of a seed-catching experiment. An isolated patch of Douglas fir with a good seed crop was located near Scappoose, Oregon, and 4x4-foot rodent proof-seed catchers were placed at regular intervals out from the area for one-fourth mile, according to the

direction of the prevailing winds, the maximum winds and the drying east winds. The seed caught in these devices will be taken out and counted every ten days until all seed has fallen. On August 27 the periodic examinations of the Douglas fir heredity plantations were started by Isaac and a temporary assistant and will probably require a month or more.

Simson has been at Wind River during the entire month, largely occupied on current meteorological observations and station maintenance jobs, readings of static with the new recording milliammeter, and a few smoking hazard tests. He also had several days on the fires near the Station watching their behavior under changing weather conditions.

Eight new dollar rain gauges have been installed at Wind River under various conditions of crown density in the mature forest near the Station. Thus far there has been but little opportunity to use them as only 40 per cent of the normal precipitation occurred this month and during the sixty-four days prior to August 14 no rain fell at all.

Munger made a number of field trips during the month, spending time on all the projects under way in western Oregon and Washington. Two trips were made to Wind River, on the last of which he was accompanied by Norman G. Jacobson of the Western Forestry and Conservation Association and Professor E. H. Steffen, head of the department of forestry at Washington State College.

Arrangements have been made for the Station's cooperation with the Research Department of the Western Forestry and Conservation Association to examine some 400,000 acres of logged lands belonging to a group of big lumber companies in western Washington, and to report upon the best use and treatment of these lands. The Research Department will undertake a regional examination this fall, to be followed by more detailed study and prescription for individual holdings later on.

## SOUTHWESTERN FOREST EXPERIMENT STATION

A thinning plot on the Prescott was examined early in August. The trees marked for removal last fall were cut between April 1 and June 1. On a plot of 4.2 acres 11.25 cords of wood and 4680 lineal feet of poles over 6" on the stump were cut. There are now left 278 trees per acre between 3.5 and 11 inches dbh. Counts on 30 stumps averaging 5.76 inches in diameter gave an average age of 36 years. Some concern is felt regarding the likelihood of an attack by Ips. A thinning plot near the Experiment Station has been badly damaged this year by Ips and other bark beetles which developed in surrounding logging slash.

The Ranger Training Camp has been in progress at the Experiment Station since August 17. It is attended by 36 Rangers. Two permanent buildings - an assembly hall and a dormitory - have been added to the Station group. The training camp affords an excellent opportunity for acquainting the Rangers and other visiting Forest officers with the work of the Experiment Station. Since the instruction and routine of the camp are handled by District Office men there is practically no interference with Experiment Station work.

Dr. V. E. Shellford of the University of Illinois spent a month at the station during July and August, working on problems in animal ecology. A pleasant 2-day visit was received from Prof. J. H. Allison of the University of Minnesota. Prof. Allison was one of the pioneer foresters on the Coconino and Tusayan.

## ROCKY MOUNTAIN EXPERIMENT STATION

At Fremont the principal activity of the month was the reproduction count on the Douglas fir cutting experiment (Mc-161), completed by Roeser on the 31st. No new seedlings started during the dry year 1924, consequently the losses this year have not been unusually large. During the period 1924-5 the losses have, however, extended back into the classes of seedlings supposed to be well established, particularly in the uncut check plot, where it might be assumed that seedlings do not start because of lack of light. It is now apparent that annual or periodic droughts are the limiting factor. It will be interesting to observe whether the spruce or fir seedlings have survived this test the better.

Bates was in the field in southern Colorado from the 2nd to 27th, inclusive, visiting the Wagon Wheel Gap branch and going over portions of seven Forests in an effort to decide on a basis for future investigative work in that portion of the State. The Uncompahgre Plateau offers excellent opportunities for systematic studies (principally in connection with regeneration of forests devastated by fire), under uniform conditions of soil extending from the pinon-juniper to the spruce type. To obtain useful growth and yield data for yellow pine, which is the most extensive type on this sandstone soil, one must resort to the San Juan Forest. There are, in addition, extensive areas of lava origin in southern Colorado which cannot be ignored, and it is proposed to make the Rio Grande Forest and the Wagon Wheel Gap branch the center for activities in this group of types.

The streamflow experiment is proceeding without interruption except the disturbance caused by the desire of the Weather Bureau to withdraw from it. It is to be hoped the Bureau can be persuaded to retain a man on the experiment until a Forest Service man can learn the ropes. The goat grazing test has, so far, had little effect, as the number of goats obtained was insufficient to cope with the heavy vegetation produced this year. For this reason the goats have been confined during August to a comparatively small part of the area.

The Fremont Station received some very valuable publicity through a contribution to the Omaha Journal-Stockman of August 10 by Mr. H. H. Biggar, a recent visitor, who wrote a very clear account of our activities and aims.

## DISTRICT 5 - CALIFORNIA DISTRICT

Work on the remeasurement of the permanent sample plots began on the Sequoia Forest August 15. Between then and the end of the month five plots aggregating 50 acres and some 5000 trees were gone over. A striking feature of the areas is the rate at which trees are growing into the four-inch class. Many of these have come in since cutting. One plot originally - fifteen years ago - had 450 trees. Five years ago nearly 800 new trees were tagged and this year an additional 500 go on the books. The future remeasurement of plots on the better sites represents a problem of the greatest difficulty.

August passed without a call for fire duty - a fact worthy of record.

Distribution of the "Role of Fire" was completed by Miss Vinther, some 7300 copies having been sent out altogether.

The new circular, "Fire and the Forest," was received - 20,000 copies - and sent to rangers and guards for distribution to campers and hunters.

Show was notified of his selection to attend the District Foresters' meeting at Denver as a D-5 representative.

## SOUTHERN FOREST EXPERIMENT STATION

Miss Mary C. Regan of New Orleans was added to the permanent staff as computing clerk. The need for additional help in working up the figures for numerous projects has long been felt, and Miss Regan's appointment will speed up our office work materially.

Forbes wrote his report to the Southern Forest Research Advisory Committee, covering the work of the Station for the past twelve months, with recommendations for a like period in the future. Chairman Barre of the subcommittee on Coordination of Research has been actively planning the work of his subcommittee, which will probably meet in New Orleans shortly before the Committee meeting September 16. A southern section of the Society of American Foresters will probably be organized at the same time.

Forbes described the workings of the Station to the East Texas Mill Managers Association meeting at Galveston.

Wyman spent several days in Washington on official business in connection with his annual leave. He also visited the Appalachian Station for a day or two. Miss Spuhler took her vacation during the month and Hine began his.

Among our visitors have been A. C. Knauss of the Madison Laboratory, through whom we completed arrangements to run a series of seed-extraction tests at Madison this fall; S. Ehrenborg, a Swedish forester; Nathan Canterbury, instructor in forestry at the Louisiana Summer Camp just closed, and formerly in forestry work at Crossett, Ark.; and State Forester Sonderegger of Louisiana, who is resigning October 1.

Of four summer fires set in various plots at Urania and McNeill only one reached the proportions we commonly associate with such fires; Hine reports that the flames in the youngest loblolly stand mounted forty feet in the air, browning the crowns of virgin longleaf seed trees on and near the plots.

Hine began a revision of his report on establishment of the Lane, S. C., light burning experiment, based on Forbes' review. If, as Bruce feels, the diameter distribution of the average plot in our pine growth study is normal, statistically speaking, we think we may be able to detect an understocked or overcrowded condition, now and perhaps in the past, through skewing of the distribution. It is highly desirable in establishing permanent sample plots that we be assured not only that the plots designated for varying treatment are alike today, but also that they had if not a normal history, at least a like history, in the past. Frequency distribution may be one key to this problem.

Forbes submitted an outline for the technical portions of the pine growth study bulletin. Wakely made excellent progress in ring counts of the increment cores taken in the extensive surveys last winter and spring; his homemade vise works very well.

With Miss Regan's help, Shivery made good progress on his establishment report covering the method-of-cutting study at Bogalusa. Forbes reviewed Demmon's report on the extensive surveys of last spring.

Routine chipping, dipping, and weighing on the naval stores studies was supplemented by the collection of 650 mid-season chips for Dr. Gerry.

Hadley prepared a memorandum covering the forest station work proposed for this fiscal year. He and Wakeley spent a few days at Bogalusa on current nursery projects.

## NORTHEASTERN FOREST EXPERIMENT STATION

Steady progress in the field was made during August on all of the Station's major projects. Behre's time was divided between New York and Vermont, and Meyer's between Vermont and Maine, while Westveld spent practically the entire month in central Maine, a considerable part of the time in company with Austin Cary. He has been going over some of the cut-over lands with which Cary was familiar thirty years ago and has found his intimate knowledge of the region extremely helpful in interpreting present conditions.

Dana, Peirson, MacAloney, and Beal attended the summer meeting of the New England Section of the Society of American Foresters in southern Maine early in the month. Two full days were devoted to field inspections of the management of the Bates College forest lands and of the operations of several private timberland owners, including particularly reproduction cuttings, thinnings, cleanings, and slash disposal, with some planting. The region is preeminently adapted to the growing of white pine, which responds readily to careful handling.

Just after the middle of the month, the Station received a ten-day visit from Assistant Forester Clapp, Director Winslow of the Forest Products Laboratory, and Director Winslow's brother, who is connected with the Conservation Division of the U. S. Chamber of Commerce. Visits were made to the Harvard and Yale forests, and to all of the Station's field parties except that engaged in fire studies in the Adirondacks. During the same period Doctors Hartley and Long of the Bureau of Plant Industry and Dr. Craighead of the Bureau of Entomology visited the region and discussed plans for the development of the work in forest pathology and forest entomology. Tentative plans for the slash disposal study were reached, which will be developed in more detail during an anticipated visit by Dr. Metcalf in September.

On the White Mountain National Forest, Clapp, Winslow, and Dana met District Forester Kelley and Supervisor Yarnall, in addition to the men from the other bureaus already mentioned. Several of the outstanding silvicultural and management problems of the forest were discussed in some detail, and several possible sites for substations inspected. It is beginning to look as if it might be necessary to select two tracts to be devoted to experimental purposes, in order to secure a sufficient variety of conditions to be really representative of the entire Forest.

## APPALACHIAN FOREST EXPERIMENT STATION

### General

McCarthy and Averell continued their work on the oak study in southern Ohio. Haasis returned from Tennessee August 22. Frothingham remained in the office the entire month looking after the building at Bent Creek. Korstian spent the month completing various reports and left on the 29th for New Haven. He will be on annual leave there for a period before beginning his work on the germination and survival of oaks in cooperation with the Yale Forest School.

Munns spent August 10 to 16 at the Station, discussing plans and taking part in some of the local field work. Besides the usual stimulation of investigative work attaching to Munns' visits, it was revealed that he swings a wicked shingling hammer. Shingles applied by Munns to the sides of the laboratory have been marked for later examination.

Miss Laxton spent the last half of August on leave of absence. On the 24th Miss Marie Simonson arrived from Washington on temporary assignment to help the Station catch up with accumulated work, notably the library classification and the compilation file.

Work on the Bent Creek field laboratory went on without interruption; windows and door frames are in, outside painting done, the floors are being laid, and the ceiling put in. With the small force of one carpenter and from two to three unskilled laborers, rapid construction was not possible, but the work has been well done and the building has a substantial and attractive appearance. Much of Frothingham's time during the month was spent on inspection and the purchase of supplies. Practically all the material for the building has been purchased, and the total cost at the end of August was less than $2,000. District 7 has agreed to develop the short stretch of road from the Brevard Highway to the laboratory. This will probably be done in September. Fire protective measures will also have to be developed immediately, on account of the severe drought and bad fire conditions resulting.

This summer has been the driest in fifty years. Asheville, with an average annual precipitation of about 39 inches, already has a deficit of more than fifteen inches since January 1. Agricultural crops have been practically ruined in some sections. Trees on the drier sites have become brown. Whether or not they have been actually killed will be the subject of a special study to be conducted by Haasis. In this study the moisture content of the soil in the root zone will be determined, notes will be made of crown and twig condition and the formation of buds, and trees will be tagged for observation in following years.

Among the August visitors were Professor and Mrs. J. G. Lee of Baton Rouge, La., Dr. E. J. Kraus of the University of Wisconsin; S. Ehrenborg of Opphem, Sweden, and Stuart Moir (Yale Forest School, 1917) of St. Petersburg, Fla. Dr. Kraus spent several weeks at the entomologists' camp at Bent Creek, where he made investigations of pathological aspects of beetle attack on shortleaf pine, as a part of the general entomological studies now under way. Mr. Ehrenborg spent ten days at Asheville and in the Smoky Mountains, and assisted materially in taking records on at least one of the Station's projects.

G. F. Gravatt and C. J. Humphrey of the Office of Forest Pathology passed through Asheville by automobile and discussed plans for pathological work with Frothingham, Korstian, and Dr. Craighead. J. A. Beal, who has been taking work in forestry and forest entomology at Syracuse University and will enter there this fall for work leading to a Ph. D. in the latter subject, joined the entomologists' camp at Bent Creek during the month.

Volume and Yield Study of the Important Oaks (TS-12)

This project was the only one upon which extensive field work has been done by the Station this summer. McCarthy and Averell worked on the oak study throughout the month in Ohio. The southern part of this State, like parts of Tennessee, Maryland, and Virginia, supported a charcoal iron industry which later gave way to that of coke and steel. Outside of the old railroad ties which are made into charcoal at the D. T. and I. car shops at Jackson, Ohio, and one operator who is still burning waste wood in pits, there were no instances of present production of charcoal found.

The burning of charcoal cleaned off the original forests of southern Ohio and gave rise to a fine type of second growth oak. Little chestnut appears in these stands as compared with the clear-cut areas further east. This second and in some cases third growth forest of oak has been very severely cut for ties. As practiced, this is rather destructive of the stands and comes too late in the life of the forest to serve as a thinning. The cutting of mine props did improve many stands, serving as a thinning as well as cleaning processs. Observations showed that repeated cuttings, if practiced carefully and with judgment, will greatly accelerate the growth of oak. White oak on most sites has a subordinate place in the crown cover and must be freed from black oak and scarlet oak competition. Sixty-five yield plots have been tallied and 244 tree measurements taken so far, and the results of this summer's work, combined with data obtained from the Ohio State Forest office, will furnish the needed material for yield and volume tables.

An attempt by Haasis to find second-growth oak stands suitable for yield table sample plots, in West Central Tennessee, was less successful. Records of a number of old charcoal furnaces in Tennessee were found and the sites visited, but it turned out that most of the good second-growth

stands had been worked through for ties within the past ten years. A great many of the stands had been so repeatedly burned as to be understocked and useless for yield purposes. Large areas will probably average not more than 10 cords per acre at 30 or 40 years. With a very few exceptions, the forests of this part of Tennessee do not amount to much.

Germination and Early Survival of Important Southern Appalachian Oaks (Mr-2)

The final measurements of the oak seedlings in the beds at Canton were made by Korstian, assisted by Munns, Ehrenborg, and Frothingham. Later, samples were dug up by Korstian and Dr. Kraus, taken to Bent Creek, and the dry weight determined. This was not quite satisfactory on account of the hardness of the soil, which made it impossible to collect all of the finer roots; but the results will nevertheless be suggestive and the range of error will not be large.

Korstian left on the 29th to continue this project at New Haven, according to the plans made last spring.

Forest Insect Studies

Dr. Craighead spent several days at Bent Creek during the first part of the month. During Munns' visit, a tally was made of thrift, mortality, and insect attack on the numbered trees in a fire-damage sample plot established last spring by McCarthy, in second-growth shortleaf pine. Considerable progress has been made by St. George, McAndrews, and Beal on the study of the life history of the southern pine beetle, instituted by Dr. Craighead. The fourth generation is just maturing, and it is believed a fifth generation will winter over as larvae. In spite of the drought, the infestation is not heavy.

Forest Pathology Studies

A study of the relation of fungi to the tannin content of chestnut wood has been begun by Dr. Humphrey, under cooperation with various extract companies entered into by Gravatt and Humphrey. At Dr. Craighead's suggestion it is proposed to investigate the relation between insect attack and blue stain of shortleaf pine.

## Manuscript News Notes

### Rocky Mountain

Some Relations of Botanical Ecology to Silvicultural Practice. C. G. Bates. (Ecology).

### Southern

Butt Taper of Tupelo Gum. E. W. Hadley. (Jour. Forestry).

### District 6

Best Time for Sowing Silver Fir in the Nursery. J. V. Hofmann. (Galley proof, Jour. Agri. Res.)

### Northeastern

Permanent Sample Plots in New England. W. H. Meyer.

## IN PRINT

Wyman, L. Spanish Moss. (American Forests, August, 1925.)

Forbes, R. D. White Smoke. (American Forests, August, 1925.)

Munns, E. N. Weather and Agriculture (Forestry) Yearbook, Department of Agriculture, 1924.

Lowdermilk, W. C. Factors affecting reproduction of Engelmann Spruce. (Jour. of Agri. Research, June 1.)

Simson, A. G. The Wind River Fire. (The Forest Patrolman of August, 1925.)

Munger, T. T. The Expectation of Summer Rains. (West Coast Lumberman, August 15, 1925, and "Four L Bulletin," August 20, 1925.)